ABSTRACT

"A CASE CONTROL STUDY OF ASSOCIATION OF NEUTROPHIL TO LYMPHOCYTE RATIO AND HEART FAILURE IN PATIENTS WITH ACUTE ST- ELEVATION MYOCARDIAL INFARCTION"

Aims &objectives:

To investigate the association between on admission NLR and heart failure in acute ST elevation myocardial infarction.

Materials and methods:

In my study a secondary data analysis of case sheets was done. On admission NLR (normal NLR is 1.8-3.5) is calculated from complete blood count taken within one hour of admission in patients with and without heart failure getting admitted to the intensive coronary care unit with acute ST- elevation myocardial infarction taking a sample size of 55 in each group. ST elevation MI is defined as > 0.2mV in V2 – V3, > 0.1 mV in all other leads. A comparison of NLR will be made between those with and without heart failure. This study will help us to know the association of NLR and occurrence ofheart failure in those

with acute ST elevation myocardial infarction. This will help us for additional risk stratification of the patients with acute STEMI.

110 cases of acute STEMI (55 with heart failure and 55 without heart failure) are required to identify the association between elevated NLR and heart failure in acute STEMI at 95% confidence interval and when the percentage of acute STEMI without heart failure with elevated NLR is 46% and the difference between the two is 30%. At KMC on an average 4 cases of AMI per day gets admitted with 40% developing heart failure. To get 55 cases of heart failure it would require roughly 2 months.

Results:

Among the entire sample 79 were males and 31 were females. In our study we encountered an increased frequency of acute STEMI in the male population. The mean age of the patients among the cases is 53.65+/- 6.43. The mean age of the patients among the control group is 51.2+/- 6.59. The results of the unpaired t-test for neutrophil count between the two groups shows high statistical significance with a P value of 0.0005. The lymphocte count between the two groups did not reach statistical significance in the unpaired t-test. The NLR distribution between the two groups is highly statistically significant with a P value of 0.0005. done a Pearsons Chi-Square test on categorical data by dividing patients with NLR <3.5

and those with NLR >/= 3.5 between the cases and controls. This achieved high statistical significance with a P value of 0.0005.

Conclusions:

This study demonstrates that a high NLR value is associated the increased risk of heart failure in acute ST elevation MI. NLR more than or equal to 3.5 predicted heart failure in those patients. Thus NLR, which is easy to assess and inexpensive, may be a novel biomarker for assessing inflammation and identifying high risk for heart failure in acute ST elevation MI. NLR was inversely correlated with EF and is an independent predictor of heart failure in acute STEMI.

Key words

Heart failure, Neutrophil lymphocyte ratio, Acute coronary syndrome, Myocardial infarction